Introduction to Quality Improvement

Facilitators Manual

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Resource Description

Preceptor-facilitated small group workshop combining discussion the origins of quality improvement and a review of its fundamental principles with an exercise to demonstrate an approach and how to utilize some QI tools to understand a familiar problem. Format is multimedia including Power-point didactic component, small group breakout session, and interactive group discussion. This module begins with a discussion of why quality improvement has become an important movement in the medical field. Then there is a review of eight important principles of quality.

Small group breakout sessions seek to demonstrate some of the principles that were discussed, with particular emphasis on the complexity of work processes and demonstrating our roles as supplier and customer in these processes.

Purpose, Goals, and Objectives

Participants will be able to:

1. Understand that quality improvement got its start in manufacturing but that it is a managerial science that uses the scientific method and is accessible and its principles valuable in health care
2. Understand that any work flow is complex and has internal and possibly external customers and suppliers.
3. Explain the cost of quality and the expense of not having it.
4. Use a fish bone diagram to identify contributors of a problem.
5. Create SMART goals in order to address a problem.

Intended Audience and Prerequisites

This module is in use for medical students, second year Internal Medicine residents in a hospitalist training program and pharmacy residents. Its contents would be applicable to anyone in the healthcare field. This module requires two hours to complete.

Instructor Qualifications and Responsibilities

The preceptor should be familiar with basic quality improvement. Small group facilitation skills are needed and some flexibility in using the fishbone diagram to accommodate analysis of learner suggested problems.

Required Resources

Computer with projector. Flip charts, White/Black board or large surface to mount the flip chart results for fishbone diagram large group discussion.

Suggested Agenda

30 minutes	Quality Improvement Pre-test – Learners will take the Quality Improvement Knowledge Assessment Pre-Test – Ogrinc G, Headrick LA, Morrison LJ, and Foster T. Teaching and Assessing Resident Competence in Practice-Based Learning and Improvement. *JGIM.* 2004; 19: 496-500.
30 minutes	Didactic Presentation: Quality Improvement Concepts 101 – Intro to basic concepts of QI, Method for Improvement – Introduce QI Handbook and expectations for QI Program
90 minutes	Small Group Exercise: Applying QI – Divide learners into 4 groups and each team will be given a health care problem to which they will apply the Model for Improvement – Instructions for each team are in the "Session 1: Small Group Work" handout – Consider providing the references articles for the learners at the session. – They will complete a Powerpoint presentation as part of their small group work to present their results to the larger group, including a fishbone diagram for the healthcare problem in their scenario
30-40 minutes	Small Group Report Out – Each team presents their powerpoint presentations to the larger group (using template)
10 minutes	Debrief and session evaluation

Suggested Preparation for Learners:
Prior to the session, learners were asked to complete these tasks:

Read articles:

- Berwick, A primer on leading the improvement of systems, *BMJ,* 1996, 312: 619-22.
- Varkey, et al. Basics of quality improvement in healthcare, *Mayo Clin Proc, 2007;* 82(6):735-739.
- Complete IHI Open School QI 101 – Fundamentals of Improvement (http://app.ihi.org/lms/coursedetailview.aspx?CatalogGuid=6cb1c614-884b-43ef-9abd-d90849f183d4&CourseGuid=60967fa6-4642-4f33-9ec2-60083d52d0fe). Registration required.

Introduction to Quality Improvement.

Slide 3

You can't have an introduction to quality improvement in healthcare without mentioning this study - To Err is Human. It was a study by the Institutes of Medicine in 2000 that sent shock waves through the medical world.

Two large studies, one conducted in Colorado and Utah and the other in New York, found that adverse events occurred in 2.9 and 3.7 percent of hospitalizations, respectively.2 In Colorado and Utah hospitals, 6.6 percent of adverse events led to death, as compared with 13.6 percent in New York hospitals. In both of these studies, over half of these adverse events resulted from medical errors and could have been prevented.

When extrapolated to the over 33.6 million admissions to U.S. hospitals in 1997, the results of the study in Colorado and Utah imply that at least 44,000 Americans die each year as a result of medical errors.3 The results of the New York Study suggest the number may be as high as 98,000.4 Even when using the lower estimate, deaths due to medical errors exceed the number attributable to the 8th-leading cause of death.5 More people die in a given year as a result of medical errors than from motor vehicle accidents (43,458), breast cancer (42,297), or AIDS (16,516).6

Slides 4

Don Berwick – survey audience to determine background knowledge.

Pediatrician at Harvard Community Health Plan - then Institute for Healthcare Improvement (IHI) and then the head of CMS – stepped down in 2011.

IHI has lead several campaigns - 5 million lives is a well-known example of their initiatives.

The Triple Aim is a framework that the IHI is promoting as a basis for any healthcare reform. It must meet these 3 critical objectives.

1. Improve the health of the population
2. Provide patient satisfaction
3. Reduce or at least control the per capita cost of health care.

Any future health payment structure - single payer, accountable care organization, medical home must satisfy these to ultimately be successful.

Quality is something that spans all three criteria.

Slide 5

In the 1900's there was a shift in medical training from an apprenticeship model to more of a scientific training. There was a transfer of power from the physician to the scientist. Both of them were doctors. They were the judges of the quality of their work and controlled the economics.

In the mid/late 20th century there is a second shift of control from doctors to others - managed care organizations, government agencies, utilization review committees and

payers began scrutinizing care and asking doctors and hospitals to explain why they do what they do.
Control locus has shifted - prior authorization
Structure has shifted - multidisciplinary teams, more transitions of care
Professional medical associations with publications of guidelines, quality assurance committees and governmental agencies are attempting to define what quality clinical care looks like. It is critical that the frontlines of medical care delivery are engaged so that we make sure these definitions are correct.

Slide 6
Quality management had its start in industry. Companies needed a product to be predictable. Prior to the Shewhart, quality control consisted of inspecting product and discarding defects. You can see the waste inherent in this method. You never make adjustments so you never change your defect rate, or you are adjusting your process to each defect, and then there is the obvious waste of what you are discarding.
In comes Shewhart, who was working for Bell Telephone (aka labs) in 1918. He wrote a revolutionary memo called "Process Quality Control" that proposed that by reducing variation in the manufacturing process, you would have a more consistent outcome – rather than reacting to each defect and adjusting the process per defect.

Deming interned under Shewhart at the Department of Ag in the 30's and transcribed many of his lectures. He said Shewhart was a genius but also had a gift for making anything 100x more complicated than it needed to be. Deming went to Japan after WW2 to help with reconstruction. He worked with Japanese industry executives including Taiichi Ohno and Shingeo Shingo and developed the Toyota Production System.
Key features of this are:
A corporate culture that is open about problems
They partnered with suppliers to identify cost savings and these were shared by both parties.

Slide 7
When they started – made in Japan was synonymous with "poor quality"
By the 80's the Japanese auto manufacturers – particularly Toyota was becoming a force and posed a threat to the Big 3 manufacturers in Detroit. A team of engineers from MIT went to Japan to try to figure out what they were doing right. – To study the Toyota production system. They noted that these auto companies were producing cars faster, with fewer defects and less inventory. They were "LEAN" –a term coined by John Krafcik, one of those engineers. It is a philosophy of identifying waste, transforming work from "push" to a "pull", changing the way inventory is managed.

By the 1990's, Japanese companies like Toyota, Honda, Sony and Nikon had come to dominate the auto, electronics and camera industry.
The lean/TPS model has spread from the auto industry, to manufacturing, on and on - to medicine.

Now what is it about manufacturing cars that could possibly translate into the service or taking care of the diverse needs of patients?

Slide 8
3 actors in a process
Supplier
Processor
Customer
The relationship is very clear in manufacturing. The supplier gives in input – materials to the worker on the manufacturing line who transforms them into a product to be received by the customer.
But this relationship is not static or limited to manufacturing. We perform all 3 roles in a day

Ask for examples from the audience of examples in their day-to-day activities when they are customers, processors and suppliers.

By understanding our needs and the needs of our customers we are able to see opportunities to improve our own work.

Slide 9
The benefit of this relationship to an outside paying customer is obvious.
It is based on long-term commitment, clear communication and trust.
However, the quality of a product or service that is being delivered to that external paying customer is in a very large part determined by the quality of the internal supplier-customer relationship.

If there is a bad relationship amongst the healthcare team – conflicts with surgery, ED, radiology – this will bleed into the flow of patient care.
Ask audience if they have seen examples of bad internal relationships and how did it affect the customer.

Slide 10
Work processes are complex. When we study processes what we will find is that they are very rarely designed. They tend to evolve organically, can change dependant on who is performing the work, and often contain vulnerable steps.

Slide 11
When studying error, you have to ask some questions – Has this happened before? Would another person have done the same thing? Could this have been anticipated?
A study that is frequently quoted attributed >90% of errors to the system. We need responsible people, but that is not enough to error proof a system.

Exhorting “be more careful” is unlikely to significantly reduce errors or defects.
Punishing or firing a person who commits an error is unlikely to make the system safer if you replace this human with another human.
The responsibility to improve quality lies with managers to lead this shift in safety culture. Workers have a very limited power to change the circumstances of their own work.

Slide 12
There are 2 ways to improve your product. You can add features – research and development to improve technology, or you can make sure that what you do, works right every time.

We know that R and D takes an investment. What is frequently under recognized is that defects and errors are costing us.
We have to discard the defective product
We have to redo the failed work
We have to have surveillance or auditors.
Employees develop work arounds that may make their work easier but often add complexity and don’t add value to the whole system.
Unhappy customers don’t come back
And worse case scenario – they sue.

If we can improve and simplify a process to have a better outcome, fewer defects, we reduce all of the cost of these things.

Slide 13
There are 3 forms of any process:
1.What the process REALLY is
2.What we THINK the process is
3.What the process SHOULD be

You have to first understand what the process IS. This means you need to go and see for yourself. Resist the urge to map a process in a conference room. You will get a map – and it may look really pretty or impressive, but it will be what you THINK the process is.

Once we know what it IS, we need to understand that every process has inherent variability. We need to know what that is, so we can know what is a real change and what is “noise”
Any process that is unpredictable will be automatically flawed. There needs to be standardized expectations to reduce this.

Slide 14

In any process there are many steps that are necessary, some that are waste or rework, and some that are CRITICAL. These important steps need to have robust support – and adding these will dramatically improve quality.
Think about wrong site surgery as an example.

When you are trying to decide where your intervention should be you will need to prioritize and be able to recognize when an improvement in one part of a process has uncovered another area of "log jam"

Slide 15
While QI got its start in manufacturing there is something about it that makes it very accessible to us – and that it is when you start to try to make things better – it is really basic scientific thinking.
Plan – you define the problem and clearly state what the goal or Aim is. You design an intervention, you plan your measurements.
Do – you perform your intervention and measure the results.
Study – you analyze the results and reflect on your original aim to determine if the change resulted in an improvement.
ACT – you redefine the process, possibly retest changing the scale of your test and if successful, you spread the knowledge you gained

Slide 16
Designating a Quality Committee or convening a Quality conference is not the same as having a culture of quality in an organization.

Universal employee involvement is critical.

Quality Improvement is really the application of the scientific method.
All employees should be trained on basic quality methods and empowered to identify waste in their jobs and create solutions.
This can be done through a number of methods – steering committees, project teams.
It must be done across departments and levels or you have little pockets of change with no clue on how they are affecting things downstream.
The way most jobs are designed, there is little time spent reflecting on what is going on, what is waste, what COULD be.
There needs to be clear strong leadership so that all of the changes that will happen are tied back into the overall mission of the organization. There needs to be an openness to face problems, a transparency, rather than hide, or blame and shame.

Section 2
Small Group Session
Ask the group if they would like to use a typical daily problem or "new year's resolution" and apply QI methods to analyze it. Previous groups have used "I want to get in shape" or "I never have clean laundry" as problems they want to tackle. Engagement is more important than solving an important problem.

Slide 22
A cause and effect diagram (aka fishbone or Ishikawa diagram) is a great way to organize your thoughts regarding all of the contributors to your problem. Here you brainstorm about all of these contributors and place them at perpendicular angles to the bones coming off of your fish.

Slides 23 - 27
These slides provide a structure to your small group discussion. Advise the learners to use the Health Care Problem Addressed Template (can be provided via email ahead of time or in electronic learning management system).

References

Mark Graban, *Lean Hospitals: Improving Quality, Patient Safety and Employee Engagement* (2nd edition). Boca Raton, FL:CRC Press,2012

Donald M. Berwick, A. Blanton Godfrey and Jane Roessner, *Curing Healthcare: New Strategies for Quality Improvement*. San Francisco: Josey-Bass,1990.

Gerald Langley, Ronald Moen, Kevin M. Nolan and Thomas W. Nolan, The Improvement Guide: A Practical Approach to Enhancing Organizational Performance. San Francisco: Josey-Bass, 2009

Suggested Reading for Facilitators
IHI Open School Courses QI 101, 102, 103

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Conflict of Interest
Dr. Price has no conflicts of interest relevant to this educational product.